

**Amendments to the Claims:**

1 (Currently Amended) A method of optical detection of characteristic quantities of an illuminated specimen, comprising:

detecting a signal that is backscattered, reflected and/or fluoresced and/or transmitted from the specimen by a spatially resolving detector wherein radiation coming from the specimen is imaged on the detector;

shifting ~~the~~ a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

determining intermediate values by an algorithm from ~~the~~ signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

wherein a dispersive element carries out the shifting of the radiation position and remains stationary in at least one of its swiveling axes, and a spatially changing effect of the swiveling in this axis is carried out by a scan unit and/or by displacement of the detector.

2 – 9 (Cancelled).

10. (Currently Amended) A method of optical detection of characteristic quantities of an illuminated specimen, comprising:

detecting a signal that is backscattered, reflected and/or fluoresced and/or transmitted from the specimen by a spatially resolving detector wherein radiation coming from the specimen is imaged on the detector;

shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

determining intermediate values by an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

~~The method according to claim 1,~~ wherein a dispersive element is swiveled for increasing ~~the~~ a spectral resolution and, further, an additional movement of the detector and/or a scan unit is carried out.

11 – 22 (Cancelled)

23. (Currently Amended) The method according to claim 1, wherein a comparison of ~~the~~ a measured signal with a reference signal is carried out via comparators in detection channels and in case the reference signal is not reached and/or is exceeded by the measured signal, a change in ~~the~~ an operating mode of ~~the~~ at least one detection channel is carried out.

24 – 25 (Cancelled)

26. (Currently Amended) A method of optical detection of characteristic quantities of an illuminated specimen, comprising:

detecting a signal that is backscattered, reflected and/or fluoresced and/or transmitted from the specimen by a spatially resolving detector wherein radiation coming from the specimen is imaged on the detector;

shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

determining intermediate values by an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

~~The method according to claim 1~~, wherein the signals of the detection channels are generated by at least one integrator circuit.

27. (Currently Amended) A method of optical detection of characteristic quantities of an illuminated specimen, comprising:

detecting a signal that is backscattered, reflected and/or fluoresced and/or transmitted from the specimen by a spatially resolving detector wherein radiation coming from the specimen is imaged on the detector;

shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

determining intermediate values by an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

~~The method according to claim 1~~, wherein the signals of the detection channels are generated by photon counting and subsequent digital-to-analog conversion.

28 – 36 (Cancelled)

37. (Currently Amended) The method according to claim 1, using further comprising an X-Y scanner arranged in an in-the illumination path.

38 – 46 (Cancelled)

47. (Currently Amended) An arrangement for optical detection of characteristic quantities of an illuminated specimen, comprising:

a detector for detecting a signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, said detector being a spatially revolving detector wherein radiation coming from the specimen is imaged on the detector;

means for imaging ~~a radiation~~ the signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, on the detector;

means for shifting ~~the~~ a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

means for determining intermediate values using an algorithm from ~~the~~ signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

wherein the shifting means includes a dispersive element that carries out the shifting of the radiation position and the dispersive element remains stationary in at least one of its swiveling axes, and a spatially changing effect of the swiveling in this axis is carried out by a scan unit.

48 – 55 (Cancelled)

56. (Currently Amended) An arrangement for optical detection of characteristic quantities of an illuminated specimen, comprising:

a detector for detecting a signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, said detector being a spatially revolving detector wherein radiation coming from the specimen is imaged on the detector;

means for imaging the signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, on the detector;

means for shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

means for determining intermediate values using an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

~~The arrangement according to claim 47,~~ wherein a dispersive element is swiveled for increasing ~~the~~ a spectral resolution and, further, an additional movement of the detector and/or a scan unit is carried out.

57 – 67 (Cancelled)

68. (Currently Amended) The arrangement according to claim 47, wherein a comparison of ~~the~~ a measured signal with a reference signal is carried out via comparators in detection channels and in case the reference signal is not reached and/or is exceeded by the measured signal, a change in ~~the~~ an operating mode of ~~the~~ at least one detection channel is carried out.

69 – 70 (Cancelled)

71. (Currently Amended) An arrangement for optical detection of characteristic quantities of an illuminated specimen, comprising:

a detector for detecting a signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, said detector being a spatially revolving detector wherein radiation coming from the specimen is imaged on the detector;

means for imaging the signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, on the detector;

means for shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

means for determining intermediate values using an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

~~The arrangement according to claim 47,~~ wherein signals of ~~the~~ detection channels are generated by at least one integrator circuit.

72. (Currently Amended) An arrangement for optical detection of characteristic quantities of an illuminated specimen, comprising:

a detector for detecting a signal that is backscattered, reflected and/or

fluoresced and/or absorbed from the specimen, said detector being a spatially revolving detector wherein radiation coming from the specimen is imaged on the detector;

\_\_\_\_\_ means for imaging the signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, on the detector;

\_\_\_\_\_ means for shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

\_\_\_\_\_ means for determining intermediate values using an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

~~The arrangement according to claim 47,~~ wherein signals of the detection channels are generated by photon counting and subsequent digital-to-analog conversion.

73 – 81            (Cancelled)

82.                (Currently Amended) The arrangement according to claim 47, further including an X-Y scanner arranged in an illumination path ~~in the illumination source.~~

83 - 90            (Cancelled)